

WHAT IS CLAIMED IS:

1. A deck-to-girder connection structure for connecting a precast or prefabricated deck to a girder, comprising:

5        at least one rod shaped elevation adjustor inserted through the deck to support the deck spaced apart from an upper surface of the girder at a predetermined interval, so as to allow a length of the rod shaped elevation adjustor projected toward an upper face of the girder to be adjusted and to allow the precast deck to be supported; and

10      at least one shear connector inserted through the deck, a lower portion of the shear connector extending toward the upper surface of the girder, an upper portion of the shear connector being fastened by at least one fastener,

wherein, when the deck is supported at a predetermined elevation spaced apart from the upper surface of the girder by the elevation adjustor after the deck is placed on the girder, a filler material is filled in a space between the girder and the deck to cause the lower portions of the elevation adjustor and the shear connector to be covered by the filler material; and

the fastener is fastened to the shear connector while pressing the deck downward.

20      2. A deck-to-girder connection structure as claimed in claim 1, wherein:

the deck is a precast concrete deck;

at least one first hollow sleeve is fitted through the precast concrete deck to cause the shear connector to be inserted into the first sleeve; and

25      at least one second hollow sleeve, an inner surface of which is formed with a female thread, is fitted through the precast concrete deck, and the elevation adjustor

has an outer surface formed with a male thread corresponding to the female thread of the inner surface of the first hollow sleeve, so that the elevation adjustor is screwed with and inserted into the second hollow sleeve.

- 5        3. A deck-to-girder connection structure as claimed in claim 1, wherein:  
            the deck is a deck made from fiber reinforced plastics (a FRP deck) having a  
            multi-cellular cross-section in a transverse direction;  
            at least one anchor block, which has a cross-section corresponding to a single-  
            cellular cross-section, is inserted and fitted in the FRP deck to cause the shear  
10     connector to be fitted through the FRP deck and the anchor block; and

15     the elevation adjustor has an outer surface formed with a thread, and at least  
            one through-hole of the FRP deck inserted through by the elevation adjustor has an  
            inner surface formed with a thread corresponding to the thread of the outer surface of  
            the elevation adjustor, so that the elevation adjustor is screwed with and inserted into  
            the FRP deck.

4. A deck-to-girder connection structure as claimed in claim 3, wherein:  
            the anchor block having the cross-section corresponding to the single-cellular  
            cross-section is inserted and fitted in the FRP deck at a position where the elevation  
20     adjustor is installed; and  
            the elevation adjustor is screwed with and inserted into the FRP deck.

5. A deck-to-girder connection structure as claimed in claim 1, wherein:  
            the FRP deck is formed with at least one mounting hole at a position where the  
25     shear connector is installed;

the FRP deck has an upper surface covered with a cover plate, the cover plate being formed with a plurality of recess, each of the recesses being formed with a through-hole through which the shear connector passes, each recess of the cover plate being seated into the mounting hole; and

- 5        after the cover plate is positioned on the upper surface of the FRP deck to allow each recess of the cover plate to be seated into the mounting hole, when the shear connector is inserted through the through-hole of each recess of the cover plate, the fastener is fastened to an upper end of the shear connector, so that the shear connector is installed to the FRP deck in such a manner that the upper end of the  
10      shear connector is located in each recess of the cover plate.

6. A deck-to-girder connection method for connecting a precast or prefabricated deck to a girder, comprising the steps of:

- fabricating the deck having at least one rod shaped elevation adjustor and at  
15      least one shear connector, the rod shaped elevation adjustor being inserted through the deck to support the deck spaced apart from an upper surface of the girder at a predetermined interval, so as to allow a length of the rod shaped elevation adjustor projected toward an upper face of the girder to be changed and to allow the deck to be supported, the shear connector, which has a lower portion extending toward the upper  
20      surface of the girder and an upper portion fastened by at least one fastener, being inserted through the deck;

placing the deck on the girder so that the deck is supported at a predetermined elevation spaced apart from the upper surface of the girder by the elevation adjustor;

- installing a form around a space between the girder and the deck to fill the  
25      space with a filler material; and

firmly fastening the fastener to the shear connector so as to press the deck downward after the filler material is hardened.